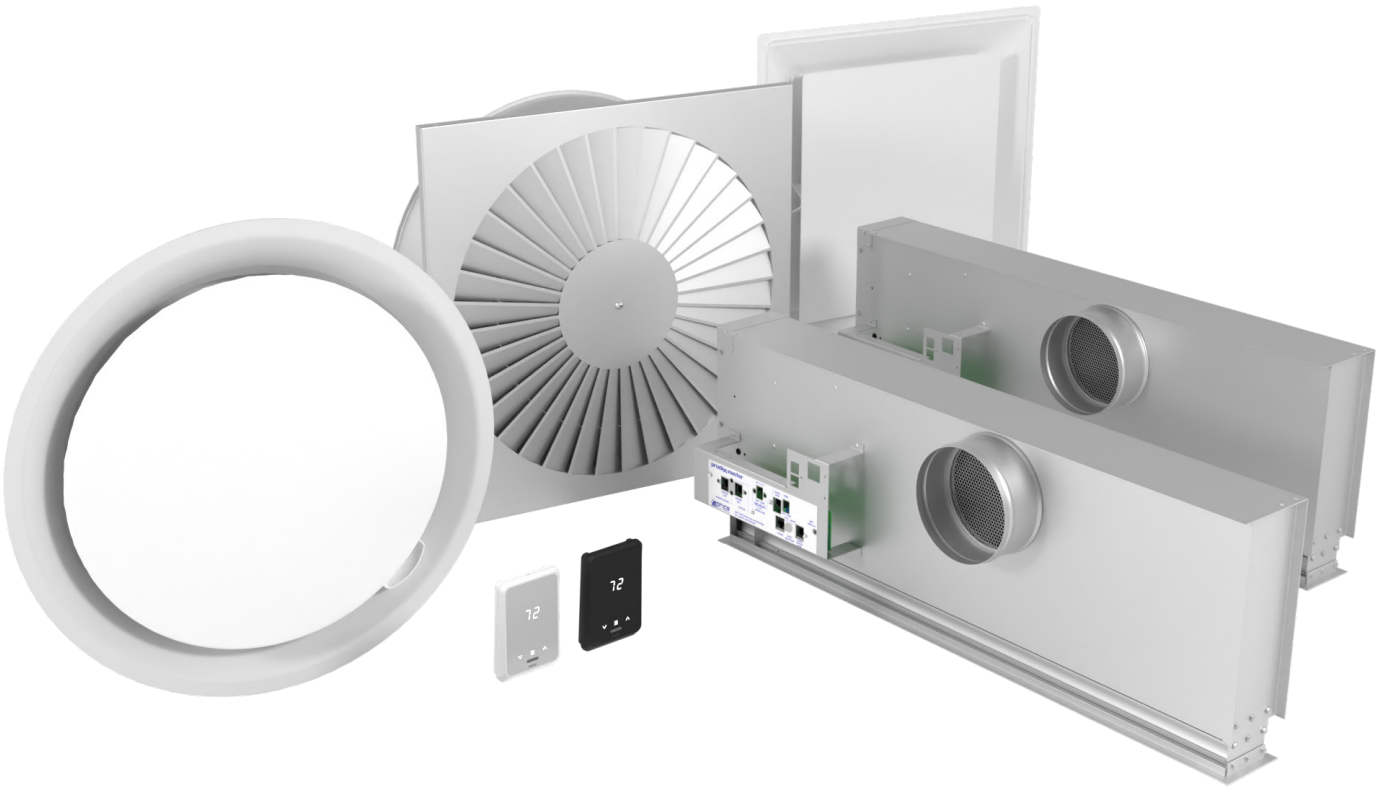

**MANUAL** – INSTALLATION

# Prodigy With Disio Display

## Prodigy® Digital VAV Diffusers

**v200 – Issue Date: 24/06/25**
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price | VAV DIFFUSERS

# PRODIGY® WITH DISIO DISPLAY

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# PRODIGY® WITH DISIO DISPLAY

## PRODUCT OVERVIEW & INSTALLATION INSTRUCTIONS

### General Description

Prodigy Disio diffusers are digital VAV diffusers with a built-in electric motor and controller providing VAV cooling and VAV heating. The damper modulates open and close to vary the air flow (warm or cool) into the room in response to room temperature. Master models have onboard controls, while the drone model imitates the master.

The Prodigy with Disio uses the Disio Display wall mounted thermostat to accurately sense room temperature in both cooling and heating modes. Disio features capacitive touch buttons on an anti-fingerprint glass with a sleek wedge design. The Prodigy is factory wired with a 25ft plenum rated cable for easy connection to the Disio Display.

Disio Display is available in White and Black colors.

**Installation into Ceiling**

Prodigy with Disio is available in four different geometries: square, round, swirl, and linear slot. Round inlets for connection to supply ductwork are standard on all models. Various border styles are available to suit most ceiling types. Please refer to individual model submittals for more details.

When installing units, make sure construction debris does not enter units or duct system.

1. Inspect the carton for damage before opening. Notify carrier if external damage exists. Submit all claims for shipping damage to the carrier.
2. Move the diffusers (in cartons) to installation area. Note any unit identification.
3. Remove cardboard box and insert. Recycle packaging material.
4. Install diffuser in ceiling (**Figure 3-4**) If installed in ceiling grid, install T-bar support wire close to each corner of unit. Make sure that only wire suspended T-bars are used to support unit weight. Limit screw and drill holes to inlet neck collar area.
5. Connect and secure the supply duct to the collar. Flexible duct should NOT be formed in a centerline radius of less than 1½ times the duct diameter.

**FIGURE 1 - DISIO THERMOSTAT ▼**

**FIGURE 2 ▼**

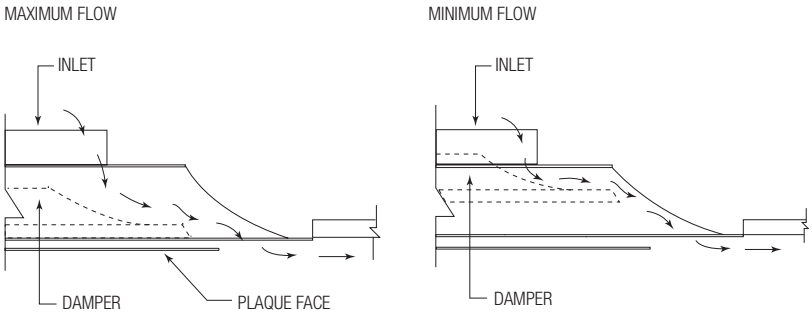



**FIGURE 3 - TYPE 1 SURFACE MOUNT ▼**

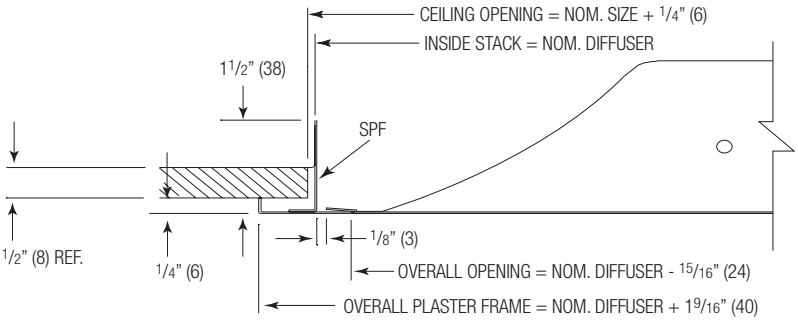
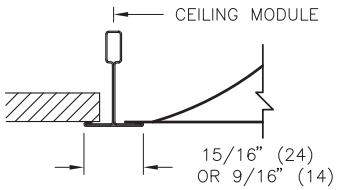

CEILING OPENING = NOM. SIZE + 1/4" (6)
INSIDE STACK = NOM. DIFFUSER
1 1/2" (38)
SPF
1/2" (8) REF.
1/4" (6)
1/8" (3)
OVERALL OPENING = NOM. DIFFUSER - 15/16" (24)
OVERALL PLASTER FRAME = NOM. DIFFUSER + 1 9/16" (40)

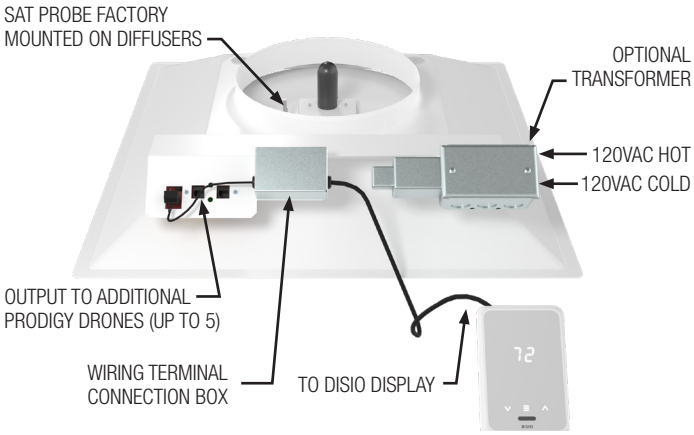
**FIGURE 4 - TYPE 3 T-BAR ▼**




MORE BORDER TYPES AVAILABLE. PLEASE SEE INDIVIDUAL MODEL SUBMITTALS FOR MORE DETAILS

6. After diffuser has been installed in ceiling, uncoil supplied cable and pull down wall to location of Disio thermostat. (**Figure 5-7**) For Disio thermostat installation.
7. Connect any optional drone diffuser(s) to the Prodigy with Disio using the cable supplied with the Drone (see **Page 6**).
8. Lastly, connect supply power (see supply power options on **Page 3-4**).
9. Balance the system (see **Page 3**).

**FIGURE 5 - PRODIGY WITH DISIO JUNCTION PANEL ▼**




### Thermostat Installation

The Disio Display thermostat can be installed to any standard single gang electrical box in the vertical orientation to be mounted to drywall or other surface using appropriate mounting hardware. The Disio Display thermostat comes as an assembly with two parts; the backing plate which is mounted to the electrical box or to the wall, and the front plate with screen that snaps onto the backing plate by aligning with the pins and the tabs.

**Step 1**

Separate front screen from backplate by carefully using a small flat screwdriver to pry the bottom of the backplate from the front screen in the pry slot provided. Next, pry the top in the same way until separated, then pull apart.

**NOTE:** The first time the screen and backplate are separated, they will be very tight.

**Step 2**

Mount the backplate to an electrical junction box or to the wall by running screws through the slots in the backplate. Plug the purple NetC25 cable into the plug on the back of the Disio labeled “Main” and the optional BACnet cable into the plug labelled “BACnet” **NOTE:** If mounting directly to drywall, drywall anchors must be used to secure the backplate.

**Step 3**

Once the wiring is complete, carefully line up the front face to the backplate and snap back together.

**FIGURE 6 ▼**

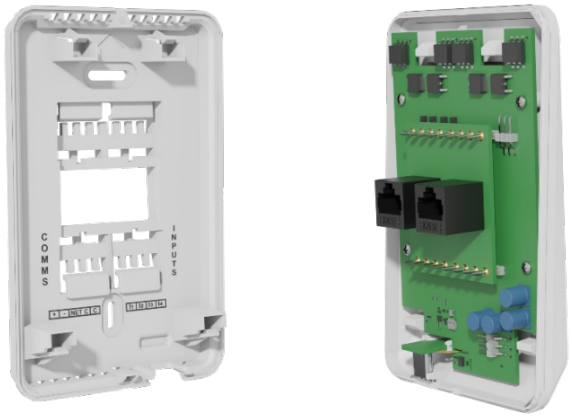
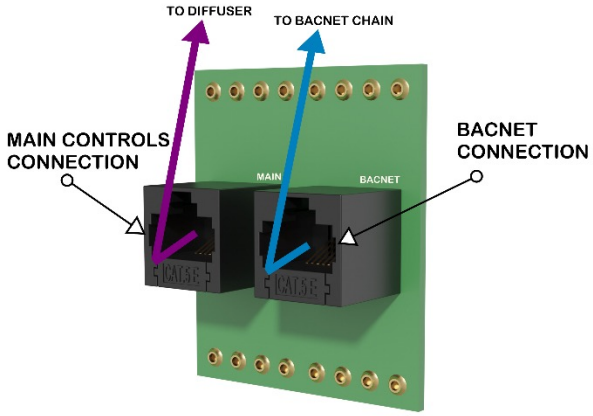



**FIGURE 7 ▼**



# PRODIGY® WITH DISIO DISPLAY

## PRODUCT OVERVIEW & INSTALLATION INSTRUCTIONS

### Disio Display Thermostat

The Prodigy with Disio uses the Disio Display wall mounted thermostat to accurately sense room temperature in both cooling and heating modes. Disio features capacitive touch buttons on an anti-fingerprint glass with a sleek wedge design. The Prodigy is factory wired with a 25ft plenum rated cable for easy connection to the Disio Display.

Disio Display is available in White and Black colors.

### Balancing

VAV diffuser systems are balanced like any other system (e.g. proportional balance) except the VAV diffuser must be in a full open position during balancing. To open the Prodigy with Disio, press and simultaneously hold both the UP arrow and DOWN arrow buttons and release when "– –" is displayed. Then press DOWN, UP, UP, DOWN and the display will show "UU" and then "bR" for balancing mode. The damper will then move to the AV28 Damper Max V (full open) position (default full open). Once balancing has been completed, press either the UP or DOWN arrow and the override will be released.

### Setpoint Adjustment

Setpoint adjustment with the Disio Display thermostat is easy! Just use the UP arrow button to increase your setpoint and the DOWN arrow button to decrease your setpoint. The display lights will flash to indicate there is a setpoint adjustment, and then fully illuminate once accepted. Pressing the Menu button will display basic information about the configuration (**see Page 15**).

#### Power Supply to Prodigy with Disio

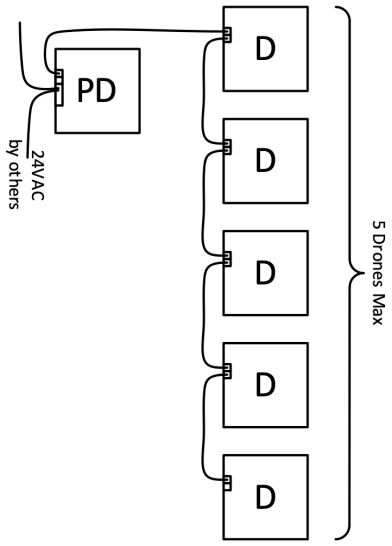
All Prodigy with Disio diffusers require a 24 VAC power supply and each draws 3.0 VA. There are three options for power:

1. **Field Supplied 24 VAC**
   Connect 24 VAC and common lines to the HOT and COM screw terminals shown in **Figure 9**.
2. **TR115 / TR277 20 VA Transformer**
   Prodigy with Disio diffusers supplied with transformer mounted to Prodigy Diffuser require field connection of primary power supply and grounding. Secondary power supply will be factory connected to the HOT and COM screw terminals shown in **Figure 9**. See Mounting/Installation instructions on **Page 9** if transformer is shipped separately.
3. **Price Power Module (PPM)**
   (See Mounting/Installation Instructions on **Page 8**)
   Use a C35 (35' Plenum rated snap-in cable) to connect power output to one of the two RJ12 ports on the Prodigy with Disio. Additional Prodigy with Disio diffusers can be powered by daisy-chain connections. See **Page 7** for limitations.

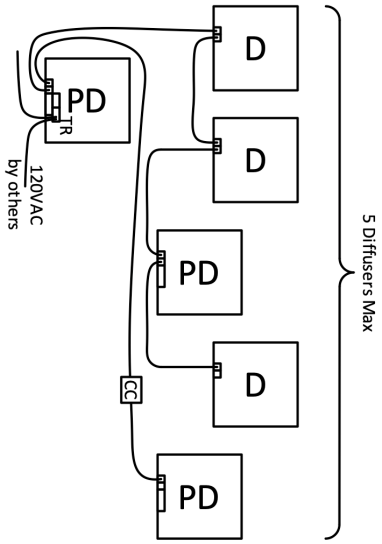
**NOTE:** HOT and COMMON 24 VAC polarity is critical and must be consistent. 24 VAC COMMON must be EARTH ground in field to ensure proper BACnet network communication.

## FIGURE 8 - EXAMPLE SUPPLY POWER LAYOUTS ▼

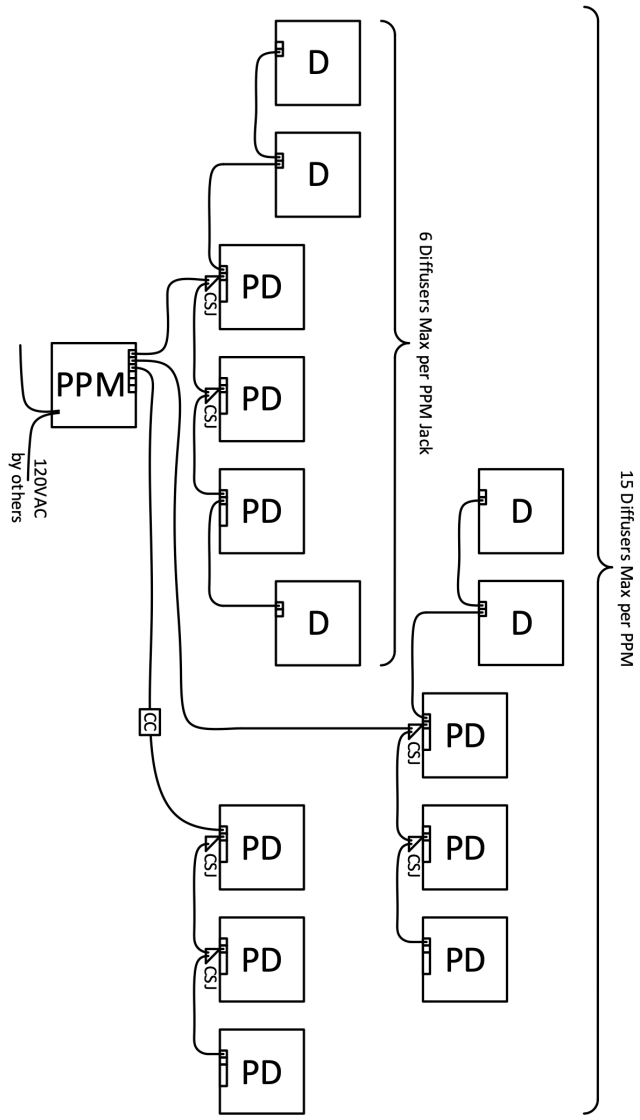
24 VAC Supplied by Others




24 VAC Supplied by Diffuser Mounted Transformer




24 VAC Supplied by PPM Power Module



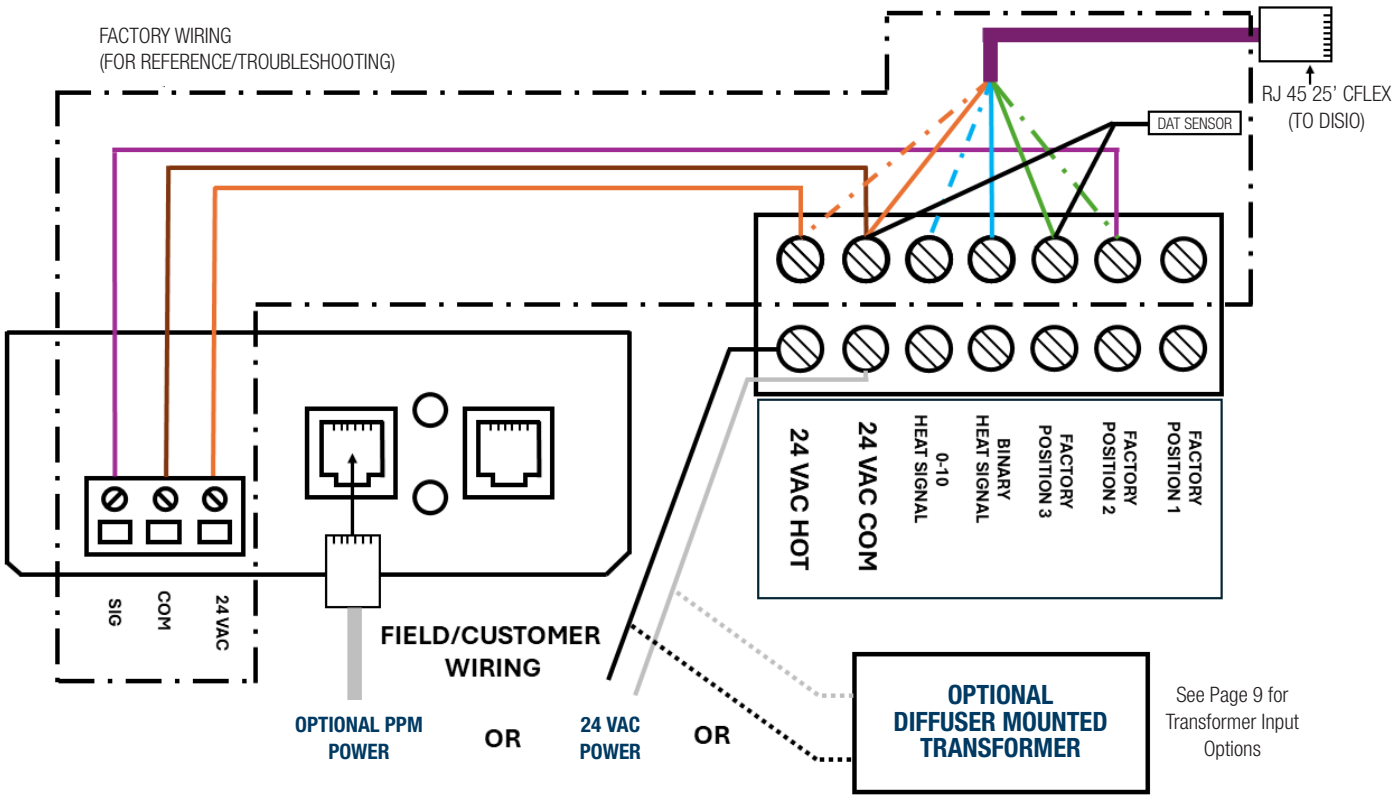

PD = Prodigy with Disio, D = Drone, TR = Transformer, CSJ = Cable Splitter Jack, CC = Cable Coupler

# PRODIGY® WITH DISIO DISPLAY

## PRODUCT OVERVIEW & INSTALLATION INSTRUCTIONS

### Diffuser Wiring

**FIGURE 9 - PRODIGY WITH DISIO TERMINAL BOX WIRING ▼**




| Factory Wiring (For Reference Only) | | | |
|---|---|---|---|
| **ITEM** | **WIRE COLOUR** | **TERMINAL POSTION** | **WIRE DESCRIPTION** |
| RJ45 25' CFLEX CABLE | ORANGE STRIPED | 24VAC HOT | 24VAC HOT |
| | ORANGE | 24VAC COM | 24VAC COM |
| | BLUE STRIPED | 0-10V HEAT SIGNAL | 0-10V HEAT SIGNAL |
| | BLUE | BINARY HEAT SIGNAL | BINARY HEAT SIGNAL |
| | N/A | FACTORY 1 | N/A |
| | GREEN STRIPED | FACTORY 2 | 2-10V DAMPER SIGNAL |
| | GREEN | FACTORY 3 | DAT SENSOR |
| DAT SENSOR | BLACK | 24VAC COM | DAT SENSOR |
| | BLACK | FACTORY 3 | DAT SENSOR |
| 3 POSITION PLUGABLE CONNECTOR | ORANGE | 24VAC HOT | 24VAC HOT |
| | BROWN | 24VAC COM | 24VAC COM |
| | PURPLE | FACTORY 2 | 2-10V DAMPER SIGNAL |

## Optional Prodigy Series Drone Diffusers

Drone diffusers contain actuators and control circuitry to respond to signals from the Prodigy with Disio diffuser. The Drone damper movement is synchronous to the Prodigy with Disio diffuser and up to five drone diffusers are supported.

The four geometries (square, round, swirl, and linear slot) of Prodigy diffusers use the same digital controls and can be mixed between Disio and Drone.

**Drone Power Supply Connection (Figure 11)**

- The PPD Drone diffuser has two RJ12 Jacks to make daisy chain connections for 24 VAC and 2-10 VDC control signal from Prodigy with Disio.
- C35 (35' plenum rated cable) supplied with RJ12 modular plugs at both ends. Use cable to connect unit with DRONE OUT on Prodigy with Disio or previously connected PPD using a free Drone output Drone Jack. Cable length may be extended by using a CC (cable connector) for longer runs.
- A maximum of five PPDs can be supported by one Prodigy with Disio. Each PPD draws 3.0 VA.

**FIGURE 10 - PRODIGY® DRONE DIFFUSERS ▼**

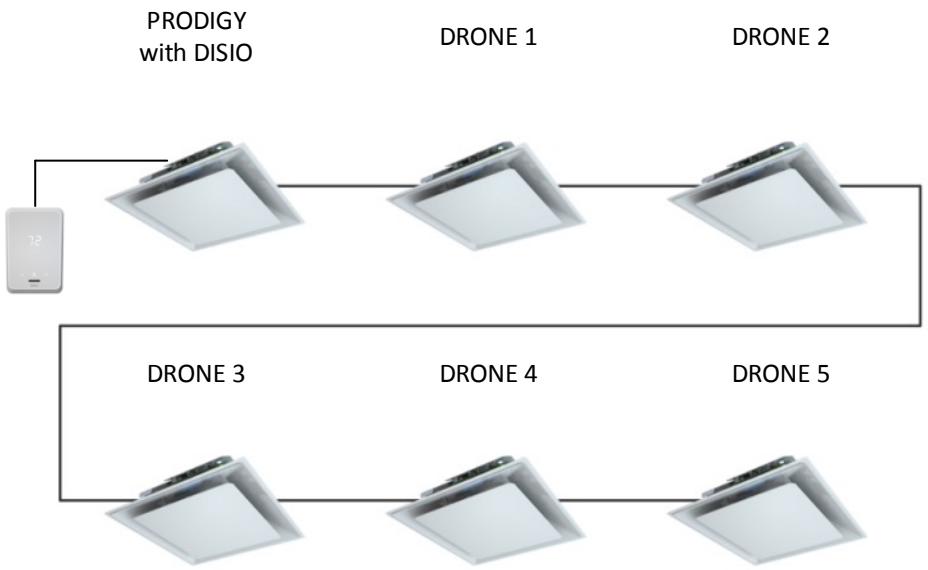
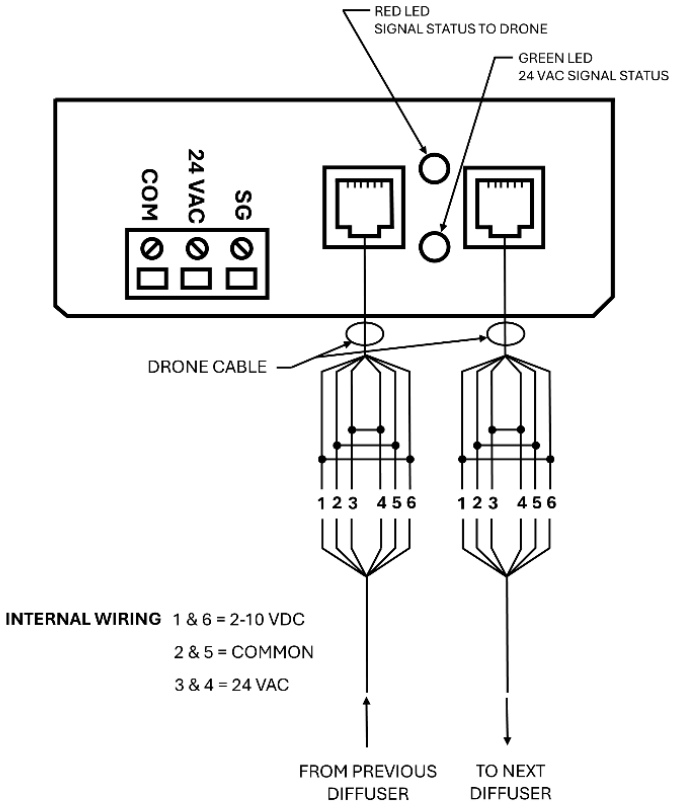



**FIGURE 11 - DRONE WIRING DIAGRAM ▼**



## Optional PPM Power Module

The Power Module (PPM) supports up to fifteen* (15) Prodigy diffusers (include Drones). It provides the most economical and convenient method of powering multiple Prodigy diffusers because electrician time is minimized. Designed to be ceiling mounted, the enclosed 96 VA Class 2 transformer is offered for 120V, 240V, 277V and 480V primary voltage supply. Final power connections to the Prodigy diffusers are completed via plenum cables with RJ (Snap-In) plugs. Since the cables are all low voltage, commissioning or relocation of Prodigy diffusers is simple.

**CAUTION:** See **Page 11** if using Aux heat option.

## Features

- 96 VA Class 2 Transformer (120 / 240/277/480 to 24 VAC) with breaker resettable overload protection.
- 6 parallel power jacks each of which support up to 6 Prodigy diffusers (include drones). Overload indicator LEDs on each line light up if too many Prodigy diffusers are connected or if there is a short in the cable.
- Max 15 Prodigy diffusers per PPM
- C35 (35ft/10.5m plenum rated cable) with RJ plugs provides flexible and convenient power connection. One required for each Prodigy with Disio unit. Multiple cables can be connected by using a CC (Cable Connector) for longer runs. 210ft/63m maximum.
- CSJ Cable Splitters used to daisy chain power between Prodigy with Disio units. (**Figure 8**) 210 ft/63m maximum.
- Power switch with indicator LED.

### Specification and Limitations

1. Total connected load not to exceed 96 VA (or 15 devices)
   - Each Prodigy unit (Disio or Drone) draws 3.0 VA.
   - See CAUTION on **Page 11** if using Aux heat option.
2. Specification for each of the 6 output jacks:
   - 20 VA auto-reset thermal fuse with fault indicator LED.
   - Supports up to 6 Prodigy diffusers up to a maximum distance of 210ft/63m from the PPM
   - Supports only one mechanical relay (12 VA max.) for aux. heat output up to a maximum distance of 35ft/10.5m. (No limitation applies to electronic solid state.)

**FIGURE 12 - PPM POWER MODULE ▼**

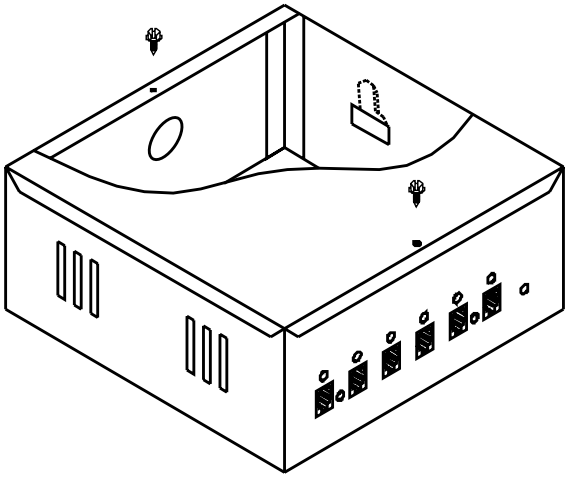
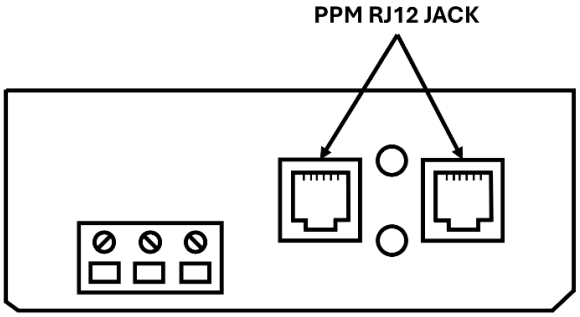


**FIGURE 13 - PPM DIFFUSER INPUT ▼**



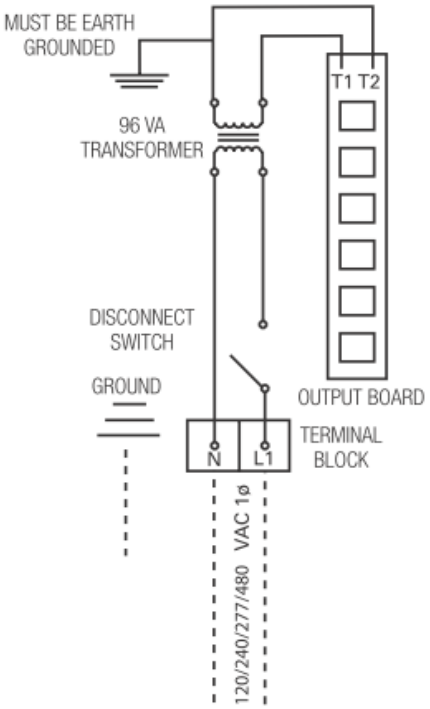
## Installation Instructions

1. Turn off power switch. Remove cover.
2. Secure box to surface in plenum using 3 mounting holes. Orientation irrelevant.
3. Supply power and ground to terminal per wiring diagram.
4. Replace cover.
5. Turn on power switch. Green LED indicates power

### Connecting a Prodigy with Disio to the PPM

1. Plug C35 power cable into an output jack on power module.
2. Plug other end of cable into one of the “Drone/Power” sockets on the control board. (Multiple C35 cables can be connected with CC - Cable Connectors for longer runs.) (Max two 35ft/10.5m cables)
3. Green Power LED and Red Drone Signal LED on Prodigy with Disio indicate proper connection.

**FIGURE 14 - PPM CONNECTIONS ▼**



## Optional TR115 / TR240 / TR277 Transformer

Optional 20 VA transformer mounts to the junction bracket of Prodigy with Disio Diffuser. Support up to 6 Prodigy units (Includes Drones).

**Installation Instructions**

1. Remove lid from junction box.
2. Fasten to Prodigy junction bracket using two #8 screws provided.
3. Connect primary power supply and grounding.
4. Replace cover.
5. Connect secondary transformer leads to power jack of Prodigy (TP - Terminal Plug provided).

Additional Prodigy with Disio diffusers may be powered using C35 cables and CSJ cable splitters to daisy-chain power. (**Figure 8**)

## Optional Baffle – PPD Square Only

An optional baffle is available to provide 3-way, 2-way, and 1-way air blow patterns.

**FIGURE 15 - OPTIONAL 20 VA TRANSFORMER ▼**

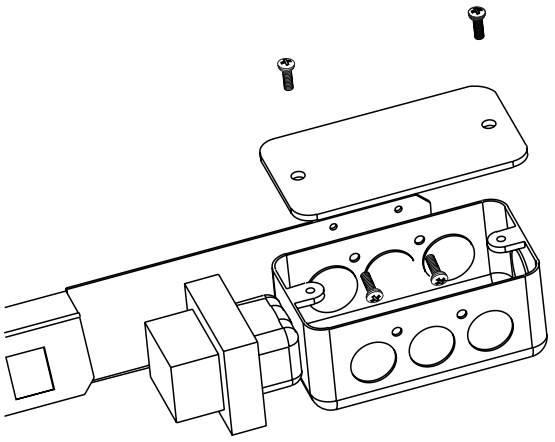
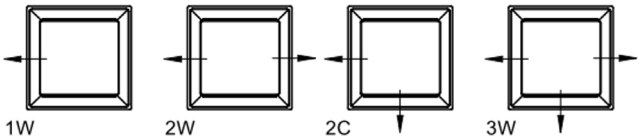


**FIGURE 16 - DIRECTIONAL BAFFLES ▼**



## Optional PRC Pressure Relief Collar (Not Available for the PLD Prodigy Linear Diffuser)

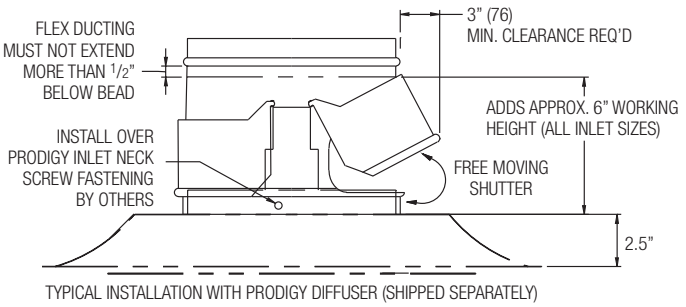
The Prodigy Pressure Relief Collar (PRC) slips over the Prodigy inlet to provide a simple and inexpensive method to control duct static pressure. The PRC's dual shutters are designed to gradually open in response to pressure in excess of approximately 0.25"wg/62Pa and allow some of the supply air to escape into the return air plenum.

### Installation Instructions

1. The PRC is intended for use only in systems that have a non-ducted return air plenum.
2. Mount PRC directly over Prodigy inlet, with shutters hanging down. Two mounting holes are provided for fastening with #8 sheet metal screws.
3. Mount ducting to top of PRC. A bead is provided on the top of the PRC as a stop for hard ducting. Flex duct may be banded below the bead providing it does not extend more than ½in/13mm below the stop bead as it will obstruct the proper operation of the shutters.
4. The PRC is shipped with shutters taped shut. DO NOT REMOVE the tape until the system is completely balanced. This will ensure that the balancer can provide maximum design air volume without excess air being relieved into the plenum. Premature removal of the tape may impair proper air system balancing.

**NOTE:** PRC is not compatible with model PLD.

**FIGURE 17 - INSTALLATION DIAGRAM ▼**




TYPICAL INSTALLATION WITH PRODIGY DIFFUSER (SHIPPED SEPARATELY)

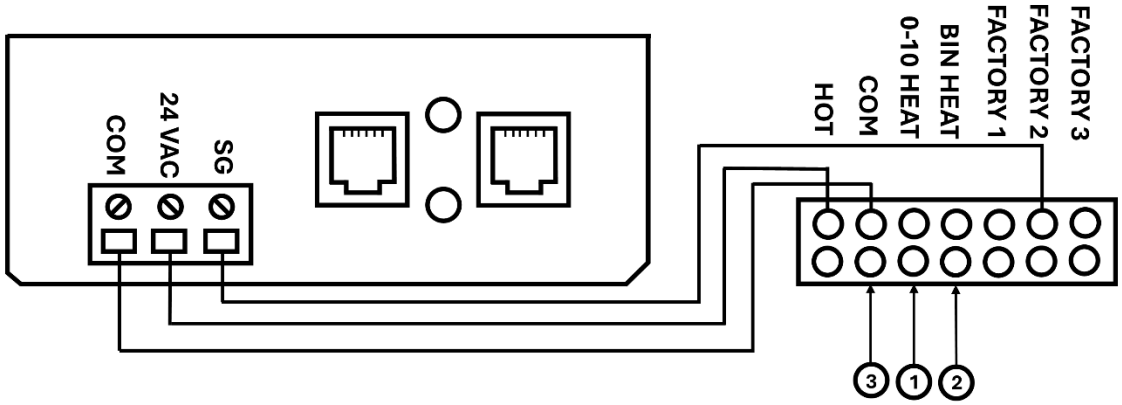
**FIGURE 18 - PRESSURE RELIEF COLLAR ▼**

## Optional Heater Control

The Disio Display thermostat comes pre-programmed to operate any form of heater in a commercial building, whether it is a baseboard heater, electric duct heater, hot water coil, unit space heater or even a radiant panel.

The default control is for either 24VAC Binary On/Off or 0-10VDC proportional. Configuration of the outputs can be done using the Disio Setup Software (**Page 16**).

**FIGURE 19 - REHEAT APPLICATION 0-10 VDC OR 24VAC BINARY ▼**




1. **Aux Heat 0-10 Output**
2. **Aux Heat Binary Output**
3. **Common**

The internal reheat relay is limited to 12 VA and should not be used to directly drive valves or radiant panels. It is intended to switch power to the primary coil of an intermediate relay.

**CAUTION:** The number of Drones supported by the Master must be reduced for each 3VA used to power the Aux Heat.

**CAUTION:** The number of diffusers (Master and Drone) supplied by the PPM must be reduced for each 3VA used to power the Aux Heat.

Two options of reheat algorithms are available:

1. **0-10 V Analog Signal** – Proportional heating signal that increases with heating demand.
2. **On/Off Binary Heating** – Acts more like a traditional thermostat and cycles the least of both options. Suitable for mechanical relay interface (24VAC, 12VA max).

## Optional BACnet Networking

### BACnet Wiring

The Prodigy with Disio can be used as a stand-alone diffuser or can be integrated into a BACnet MS/TP network using the provided NETC35 cables and BACnet T-connector. (See **Figure 21**) Price follows the T568B wiring standard for three wire (NET+,NET-, NET COM) for BACnet communication.

**NOTE:** for three wire BACnet NET COM must be wired.

BACnet networks must be run in a daisy chain configuration, meaning there is only one main cable, and each network device is connected directly along its path, with no more than 30 devices per segment, and MS/TP segment lengths must not exceed 1050ft/315m.

**NOTE:** Prodigy with Disio BACnet connection must be wired using a 3 wire BACnet system.

### Termination

BACnet MS/TP networks must be terminated to ensure proper operation. A network should be terminated twice, once at the beginning and once at the end. Termination helps reduce reflections and noise. The termination can be done with a 100 ohm resistor across the + and - lines.

**TECH TIP:** The Price BACnet MS/TP to IP Router has built in termination and it is enabled by default (since the router is typically the beginning of the entire MS/TP network). Now you only have to go and find/terminate that last device.

### Electrical Noise

Electrical noise can affect both analog signal and digital communications such as BACnet. **Therefore, do not route high voltage lines next to the BACnet network**. Avoid noisy electrical sources such as:

- Variable Frequency Drives
- High current power lines (main panel feeds)
- Fluorescent light fixtures

If you must pass near noisy electrical lines cross at right angles. This will help reduce the amount of noise coupled to the network wires.

**FIGURE 20 - ELECTRICAL NOISE EXAMPLE ▼**

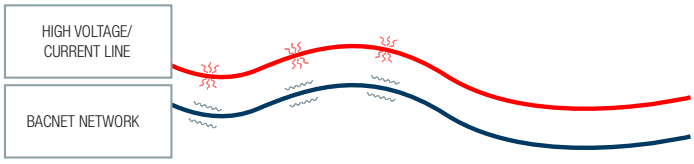
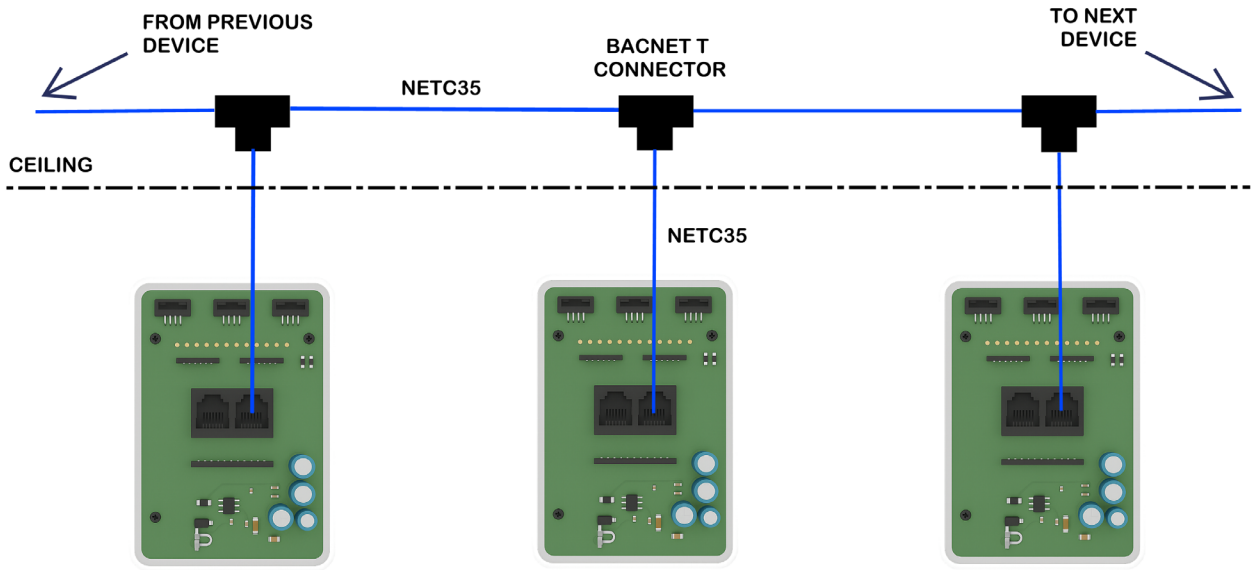


**FIGURE 21 - BACNET DAISYCHAIN EXAMPLE ▼**




## Network Wire Specifications

For the BACnet MS/TP network specific wire is required. Do not use standard power or “thermostat” wire. This wire does not have the necessary requirements for digital communications. While it’s possible it may work (temporarily) the network will be unreliable and not operating optimally.

**BACnet MS/TP Wire type recommendations**

- Use one balanced twisted pair
- Low capacitance (17pF or less)
- Plenum rated (FT6, CMP ratings)
- 100-120 ohm, balanced
- (CAT5, CAT5E, CAT6 network cable has excellent specifications and will work in almost any BACnet MS/TP application.)
- **Price recommends using the Orange Complement for (+), the Orange for (-), and the Brown and Brown Complement for the (NETCOM) connections. These are paired in a standard CAT5E cable.**

**NOTE: NETCOM MUST BE WIRED (3 WIRE BACNET)**

## Sequence of Operation

### Supply Air Temperature measured to determine mode

All Prodigy with Disio diffusers have a temperature sensor located near the inlet for automatic heating / cooling changeover. For automatic changeover the Prodigy with Disio uses a dynamic neutral mode for optimal use of the supply air. Basically if the supply air can help the Prodigy meet the room set point it is used as such. For example if the supply air is 70F and the room temperature is 80F with a set point of 72F, the Prodigy will consider the supply air as cold and modulate appropriately. Please note, however, it is typically difficult to cool a room with supply air temperatures above 60F. Changeover and dynamic neutral mode is as follows:

1. Heating Mode - Supply air temperature warmer than room temperature by 2°F (1°C)
2. Neutral Mode - Supply air within 2°F (1°C) of room air
3. Cooling Mode - Supply air temperature 2°F (1°C) below room temperature

If Dynamic neutral mode is not required, user can force HOT and COLD switch points in the Disio Setup Software. This method is not recommended but is available for unique circumstances (**Page 16**).

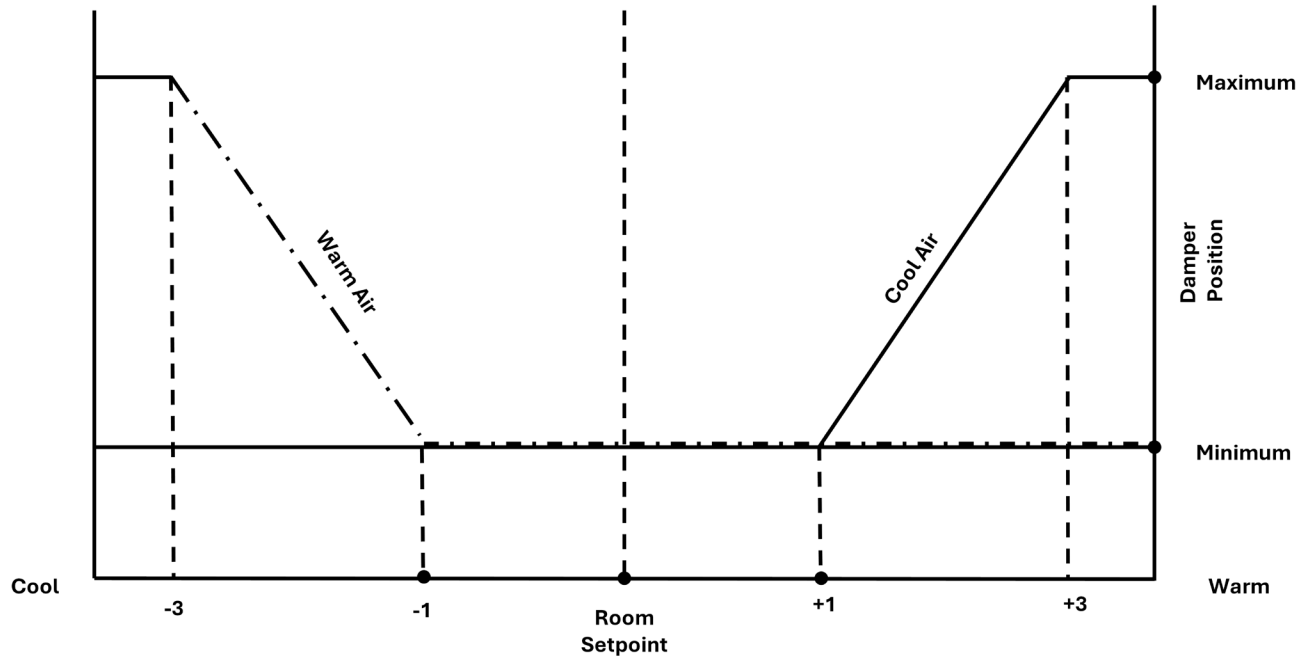
### Cool supply air

On an increase in space temperature the T-Stat and Prodigy regulate the diffuser's air damper open to increase the flow of cool air. On an increase of space temperature greater than the cooling proportional band, the damper position (%) is maintained at its pre-selected maximum setting. On a decrease in space temperature the T-Stat and Prodigy regulate the diffuser's air damper closed to reduce the flow of cool air. If the space temperature decreases to less than the cooling proportional band, the damper position (%) is maintained at the pre-selected minimum setting.

### Warm supply air

On a decrease in space temperature the T-Stat and Prodigy regulate the diffuser's air damper open to increase the flow of warm air. On a decrease of space temperature greater than the heating proportional band, the damper position (%) is maintained at its pre-selected maximum setting. On an increase in space temperature the T-Stat and Prodigy regulate the diffuser's air damper to reduce the flow of warm air. If the space temperature increases above the heating proportional band, the damper position (%) is maintained at the pre-selected minimum setting.

**FIGURE 22 - CONTROL GRAPH ▼**



# PRODIGY® WITH DISIO DISPLAY

## PRODUCT CONFIGURATION & NAVIGATION

### Disio Navigation

The Menu ☰ button displays basic information of the controller regarding application, room temperature, room load, etc. Values cannot be changed from the menu, just viewed for information only. Press and hold Menu ☰ button for 2 seconds to enter the Info Menu. Scroll through using the **up** and **down** buttons.

| | |
|---|---|
| AP | Application: Prodigy VAV Diffuser with Disio Display UU |
| tu | Temperature Units: F Fahrenheit or C Celsius |
| rt | Room Temperature |
| CL or HL or n | Controller Load: CL cooling -1 - -99, HL heating 1 - 99, n neutral |
| dP | Damper target Position 2-10 (0-100%) |
| SA | Supply Air Temperature |

# PRODIGY® WITH DISIO DISPLAY

## PRODUCT OVERVIEW & INSTALLATION INSTRUCTIONS

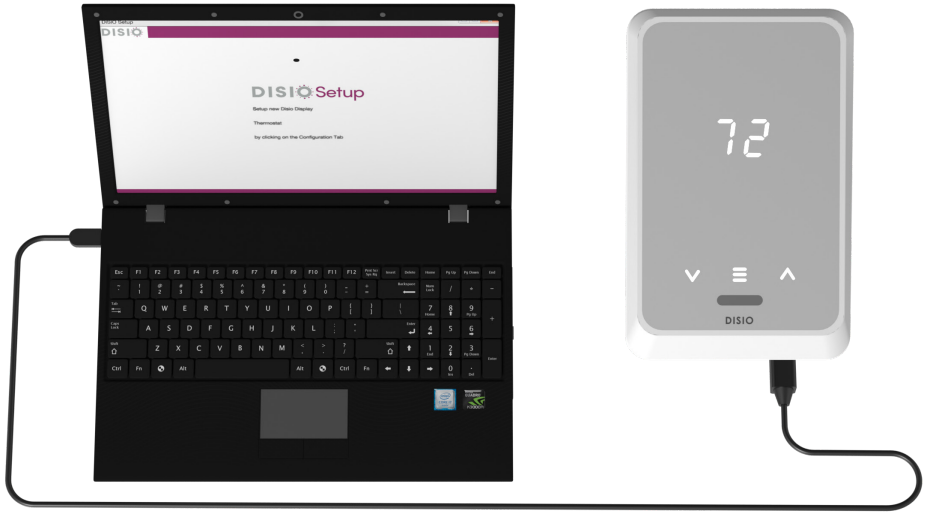
### General

Disio Setup is a FREE Windows based software used to setup and calibrate the Disio Display Thermostat in the field or warehouse. This cutting-edge software connects through a USB to USB-C cable from your Windows computer to the Disio Display Thermostat. Once connected the Disio Setup can scan a device and determine the sequence of operation and display all the parameters that are available inside the controller making setup and troubleshooting quick and easy.

### Downloading Disio Setup Software

To use the Disio Setup software, you must first install the Disio Setup software for Windows computers from the **disio.io** website: **disio.io/setup**.

**DISIO SETUP CONNECTION TO COMPUTER ▼**




### Running Disio Setup Software

After connecting the USB cable to your computer, click the Disio Setup icon to run the software you previously downloaded from the **disio.io** website.

#### Connection

This column shows the port the controller is connected to, the current firmware, and sequence of operation in the controller. Order information is also available in this column if the controller was calibrated at the factory.

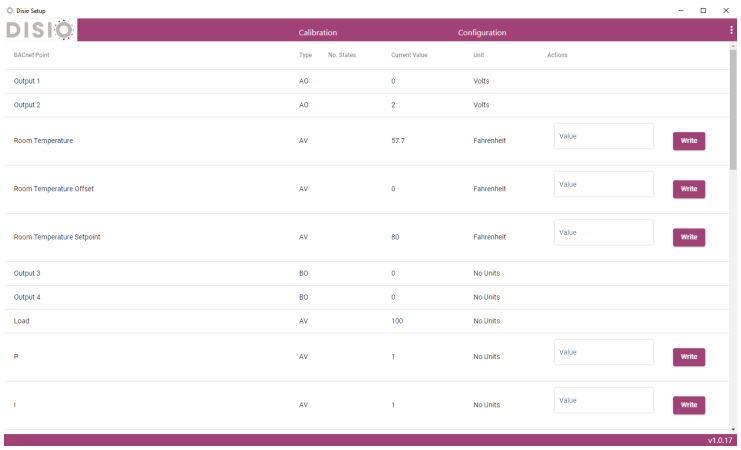
#### Calibration

This tab shows all pre-built sequences of operation available to load into the connected controller. A user can also select their temperature units and update their controller's firmware from this tab.

#### Configuration

This tab shows all the parameters that are available throughout the controller. Some of the variables that can be adjusted in this tab include setpoint limits, (optional) BACnet configurations, etc.

**DISIO SETUP CONFIGURATION PAGE ▼**

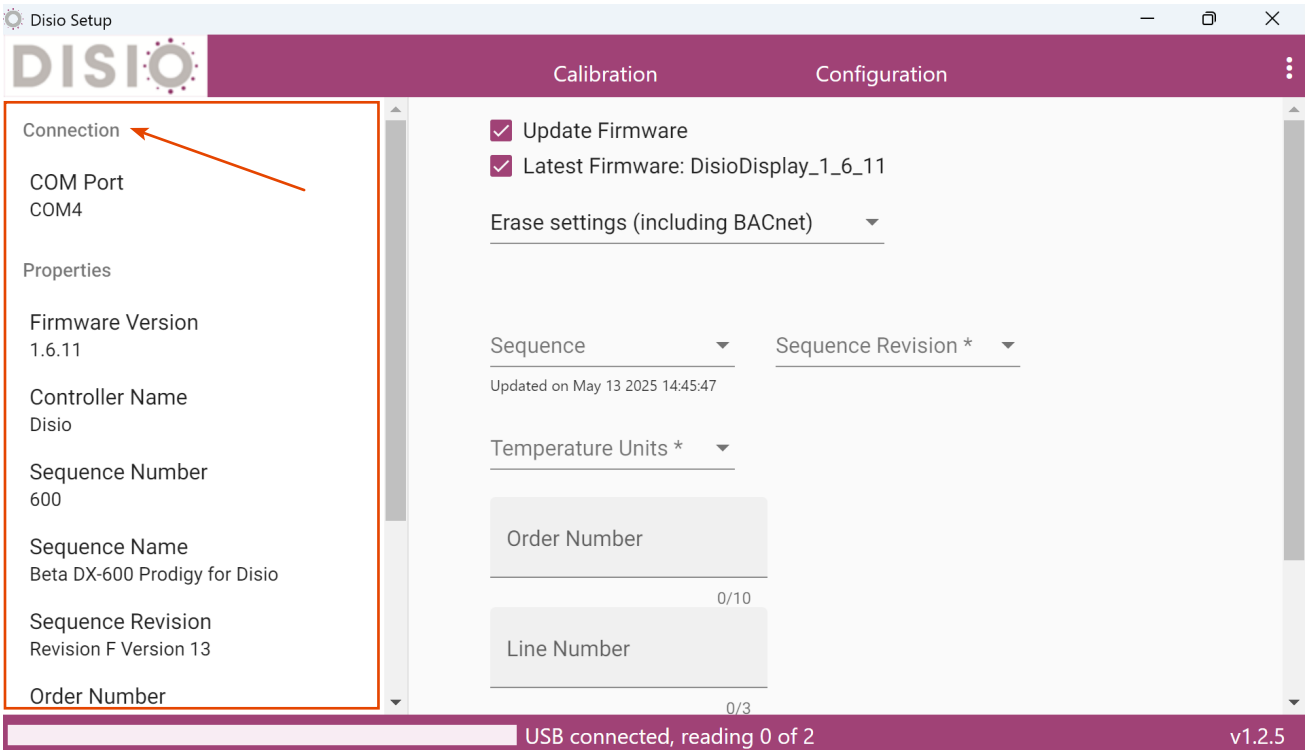


# PRODIGY® WITH DISIO DISPLAY

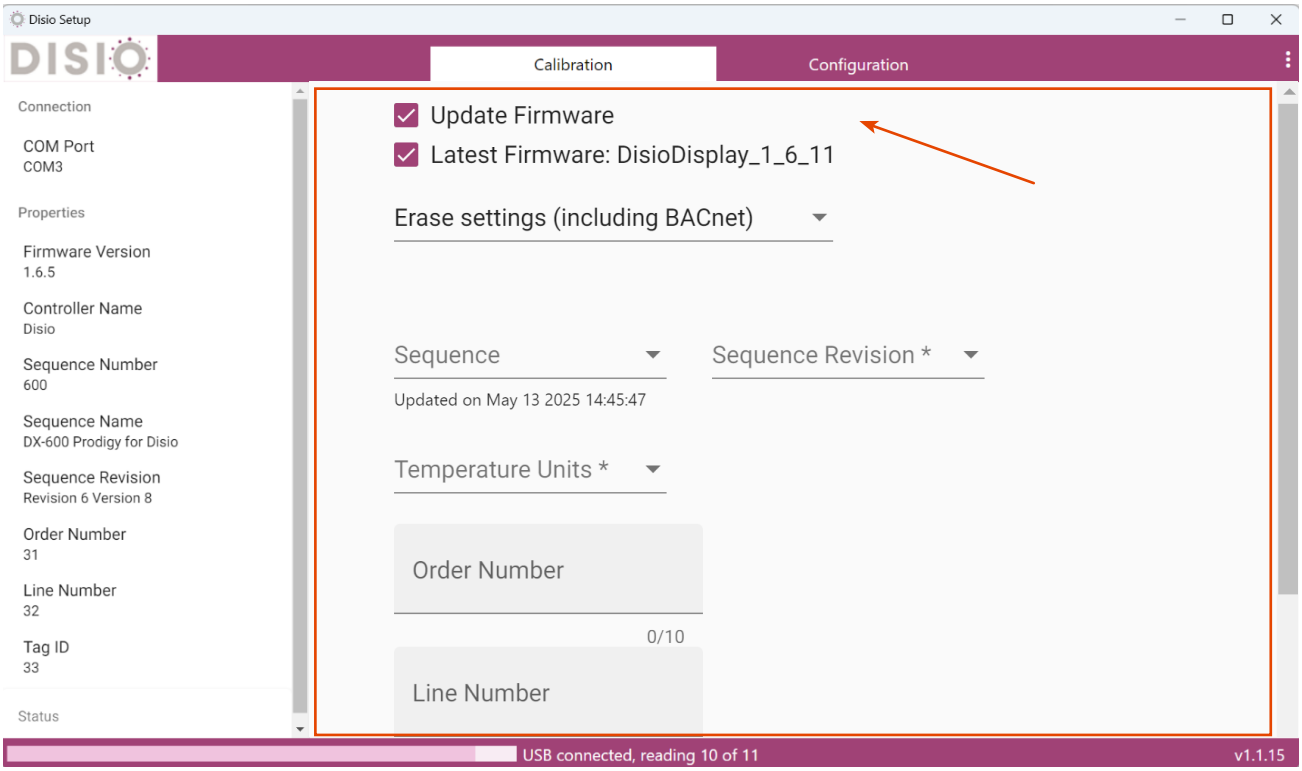
## PRODUCT CONFIGURATION & NAVIGATION

The Calibration tab displays the Connection and Calibration windows.

The Connection window shows the current firmware configuration of the Disio thermostat.



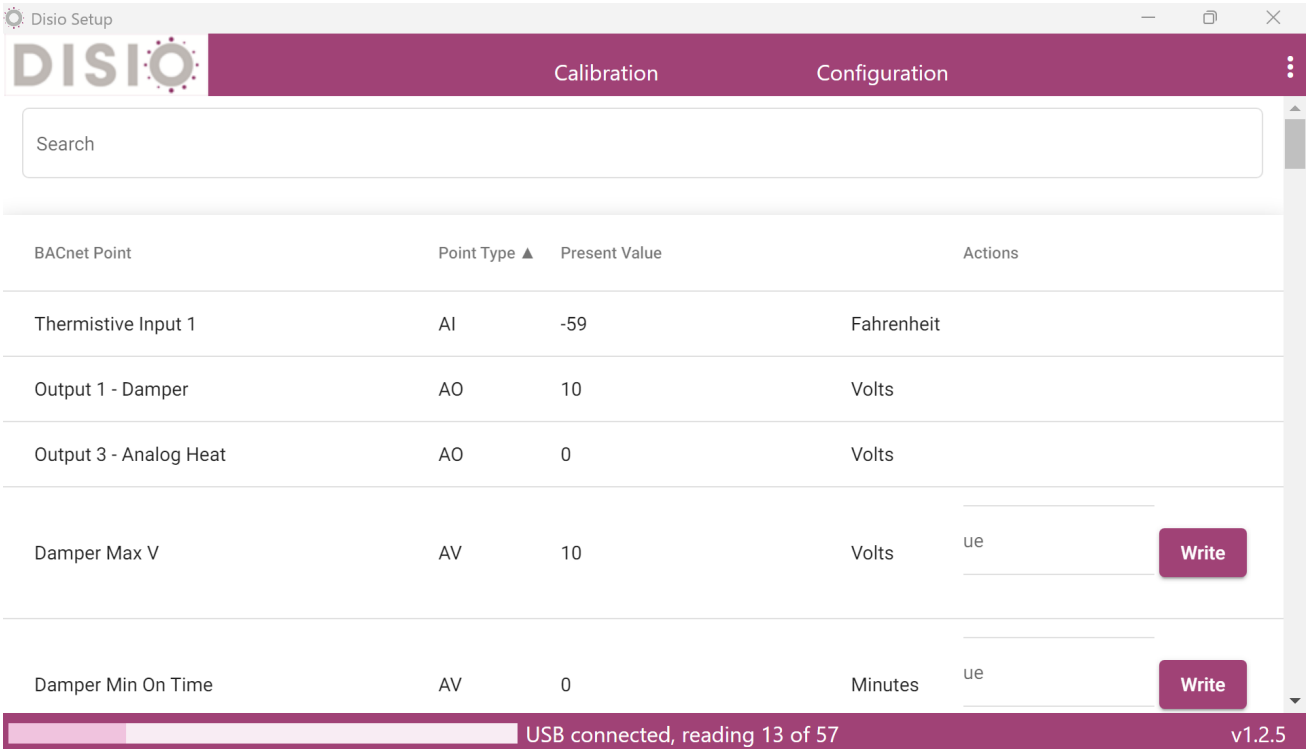

The Calibration window is used to update the Disio firmware.



# PRODIGY® WITH DISIO DISPLAY

## PRODUCT CONFIGURATION & NAVIGATION

The Configuration tab is used to adjust the settings of the Disio.



## BACnet Objects

**Measurements**
AI1 Thermistive Input1
AV11 Room Temperature
AV13 SAT

**Set Points**
AV6 Room Temperature Setpoint
AV7 Room Temperature Setpoint Min
AV8 Room Temperature Setpoint Max

**Damper Position**
AO1 Output1 Damper

**Balancing**
MV11 Device Mode

**Heat/Cool Changeover**
AV28 Inlet Temperature Delta (changeover)
MV2 Inlet HCCO

**Optional Output to Control Local Heater**
BO1 Output 2 Binary Heat
AV33 Binary Heat Min On Time
AV34 Binary Heat Min Off Time
AO2 Analog Heat
AV35 Analog Heat Min V
AV36 Analog Heat Max V
AV37 Analog Heat Min On Time
AV38 Analog Heat Min Off Time

**Optional Occupancy Control**
MV7 Occupancy
MV8 Occupancy Source
MV9 Support Unoccupied Mode
AV39 Occupancy Time out

**BACnet Settings**
AV1 MAC Address
MV6 Baud Rate

**Deadband Target**
AV9 Deadband Damper

**Sensor Calibration**
AV10 Room Temperature Offset
AV12 SAT Offset

**Units of Measure**
MV3 Temperature Units
MV4 Airflow Units
MV5 Pressure Units

**Disio Display Settings**
AV5 LED Brightness
AV40 Proximity Screen Timeout
MV10 Proximity Screen Mode

**Software Revision**
AV2 Sequence Version
AV3 Sequence Number
AV4 Hardware Version
MV1 Sequence Revision

**Factory Settings – Do not adjust without consulting Factory**

**Output Configuration**
AV29 Damper Min V
AV30 Damper Max V

**Diagnostics**
AV41 Diagnostic Mode

**Control Loop Settings**
AV14 Cooling Loop Kp
AV15 Cooling Loop Ki
AV16 Cooling Loop Pro Band
AV17 Cooling Loop Dead Band
AV18 Cooling Loop Unoccupied Dead Band
AV19 Cooling Loop Service Time
AV20 Cooling Loop Load
AV21 Heating Loop Kp
AV22 Heating Loop Ki
AV23 Heating Loop Pro Band
AV24 Heating Loop Dead Band
AV25 Heating Loop Unoccupied Dead Band
AV26 Heating Loop Service Time
AV27 Heating Loop Load

# PRODIGY® WITH DISIO DISPLAY

## PRODUCT CONFIGURATION & NAVIGATION

| Object | Name | Units | Default | Range | Description | R/W | Retained on Powewr Failure |
|---|---|---|---|---|---|---|---|
| AI1 | Supply Air Temperature | °F/°C | N/A | -59 - 300°F | Current Supply Air Temperature | R/W | N |
| AO1 | Damper | Volts DC | N/A | 2 - 10V | Current Damper Control Voltage | R/W | N |
| AO2 | Analog Heat | Volts DC | N/A | 0 - 10V | Current 0-10 Heater Output Signal | R/W | N |
| AV1 | MAC Address | N/A | 2 | 0 - 127 | BACnet MAC Address | R/W | Y |
| AV2 | Sequence Version | N/A | N/A | N/A | The Version of the Sequence | R | Y |
| AV3 | Sequence Number | N/A | 600 | N/A | The Number of the Sequence | R | Y |
| AV4 | Hardware Version | N/A | N/A | N/A | Disio Hardware Version Number | R | N |
| AV5 | LED Brightness | Percent | 40% | 0-100% | Brightness of the Disio Display | R/W | Y |
| AV6 | Room Temperature Setpoint | °F/°C | 72°F | 65 - 80°F | Current Room Temperature Setpoint | R/W | Y |
| AV7 | Room Temperature Setpoint Min | °F/°C | 65°F | 32 - 80°F | Minimum user-adjustable setpoint | R/W | Y |
| AV8 | Room Temperature Setpoint Max | °F/°C | 80°F | 65 - 300°F | Maximum user-adjustable setpoint | R/W | Y |
| AV9 | Deadband Damper | Percent | 0% | 0 - 100% | Deadband Damper Target | R/W | Y |
| AV10 | Room Temperature Offset | °F/°C | 0°F | -20 - 20°F | Delta Applied to Temperature Reading | R/W | Y |
| AV11 | Room Temperature | °F/°C | N/A | -59 - 300°F | Current Room Temperature | R/W | N |
| AV12 | SAT Offset | °F/°C | 0 °F | -20 °F - 20 °F | Delta Applied to SAT Reading | R/W | Y |
| AV13 | SAT | °F/°C | N/A | -59 - 300°F | Current Supply Air Temperature | R/W | N |
| AV14 | Cooling Loop Kp | N/A | 1 | 0 - 300 | Proportional for Cooling Loop offset which is the difference between the input signal and the setpoint. | R/W | Y |
| AV15 | Cooling Loop Ki | N/A | 1 | 0 - 300 | Integral for Cooling Loop is a time-based correction factor to improve the accuracy of the output signal | R/W | Y |
| AV16 | Cooling Loop Pro Band | °F/°C | 2°F | 0 - 300°F | Pro Band for Cooling Loop that is the time for the control signal to go from 0 - 100 load/demand | R/W | Y |
| AV17 | Cooling Loop Dead Band | °F/°C | 1°F | 0 - 300°F | Dead Band for Cooling Loop that is the range set within the controller where no action is taken | R/W | Y |
| AV18 | Cooling Loop Unoccupied Dead Band | °F/°C | 10°F | 0 - 300°F | Unoccupied Dead Band for Cooling Loop that is the range set within the controller where no action is taken when controller is in unoccupied | R/W | Y |
| AV19 | Cooling Loop Service Time | Seconds | 60s | 0 - 600s | Time in which the Heating Loop runs in seconds when there is a demand for heating | R/W | Y |
| AV21 | Heating Loop Kp | N/A | 1 | 0 - 300 | Proportional for Heating Loop offset which is the difference between the input signal and the setpoint. | R/W | Y |
| AV22 | Heating Loop Ki | N/A | 1 | 0 - 300 | Integral for Heating Loop is a time-based correction factor to improve the accuracy of the output signal | R/W | Y |
| AV23 | Heating Loop Pro Band | °F/°C | 2°F | 0 - 300°F | Delta from setpoint for the control signal to go from 0 - 100 load/demand | R/W | Y |
| AV24 | Heating Loop Dead Band | °F/°C | 1°F | 0 - 300°F | Maximum delta from setpoint where no action is taken | R/W | Y |

# PRODIGY® WITH DISIO DISPLAY

## PRODUCT CONFIGURATION & NAVIGATION

| Object | Name | Units | Default | Range | Description | R/W | Retained on Powewr Failure |
|---|---|---|---|---|---|---|---|
| AV25 | Heating Loop Unoccupied Dead Band | °F/°C | 10°F | 0 - 300°F | Unoccupied Delta from setpoint where no action is taken | R/W | Y |
| AV26 | Heating Loop Service Time | Seconds | 60s | 0 - 600s | Time in which the Heating Loop runs in seconds when there is a demand for heating | R/W | Y |
| AV27 | Heating Loop Load | Percent | N/A | 0 - 100% | Range of the heating loop load in percent | R/W | N |
| AV28 | Inlet Temperature Delta | °F/°C | 2°F | 1 - 20°F | Controls what is considered hot/cold air. So if air coming in is lower than room setpoint by delta, its considered cold air. If air is coming in is hotter than room setpoint by this delta its considered hot enough | R/W | Y |
| AV29 | Damper Min V | Volts DC | 2V | 0 - 10V | Minimum Damper Output Voltage | R/W | Y |
| AV30 | Damper Max V | Volts DC | 10V | 2 - 10V | Maximum Damper Output Voltage | R/W | Y |
| AV31 | Damper Min On Time | Minutes | 0min | 0 - 360min | Minimum time that the damper will be forced to stay open and will not be allowed to close until specified time is reached | R/W | Y |
| AV32 | Damper Min Off Time | Minutes | 0min | 0 - 360min | Minimum time that the damper will be forced to stay closed and will not be allowed to open until specified time is reached | R/W | Y |
| AV33 | Binary Heat Min On Time | Minutes | 0min | 0 - 360min | Minimum time binary heat will be forced to stay on once activated | R/W | Y |
| AV34 | Binary Heat Min Off Time | Minutes | 0min | 0 - 360min | Minimum time binary heat will be forced to stay off once deactivated | R/W | Y |
| AV35 | Analog Heat Min V | Volts DC | 0V | 0 - 10V | Minimum output voltage for Output 3 | R/W | Y |
| AV36 | Analog Heat Max V | Volts DC | 10V | 0 - 10V | Maximum output voltage for Output 3 | R/W | Y |
| AV37 | Analog Heat Min On Time | Minutes | 0min | 0 - 360min | Minimum time analog heat will be forced to stay on and will not be allowed to turn off until specified time is reached | R/W | Y |
| AV38 | Analog Heat Min Off Time | Minutes | 0min | 0 - 360min | Minimum time analog heat will be forced to stay off and will not be allowed to turn on until specified time is reached | R/W | Y |
| AV39 | Occupancy Timeout | Minutes | 240min | 0 - 600min | Sets how long it takes the Disio Display Thermostat to go from occupied to unoccupied when the source is not BACnet | R/W | Y |
| AV40 | Proximity Screen Timeout | Seconds | 10sec | 5-86400 sec | Time required without proximity detection for display timeout | R/W | Y |
| AV41 | Diagnostic Mode | N/A | N/A | 0 - 8388607 | For internal use only | R/W | N |
| BO1 | Binary Heat | N/A | N/A | 0 - 1 | Current Binary Heater Output Signal | R/W | N |
| MV1 | Sequence Revision | N/A | 6 | 26 States | 1-A, 2-B, 3-C, 4-D, 5-E, 6-F, 7-G, 8-H, 9-I, 10-J, 11-K, 12-L, 13-M, 14-N, 15-O, 16-P, 17-Q, 18-R, 19-S, 20-T, 21-U, 22-V, 23-W, 24-X, 25-Y, 26-Z | R | Y |
| MV2 | Inlet HCCO State | N/A | N/A | 3 States | 1- Neutral<br>2- Hot<br>3- Cold | R/W | N |

| Object | Name | Units | Default | Range | Description | R/W | Retained on Powewr Failure |
|---|---|---|---|---|---|---|---|
| MV3 | Temperature Units | N/A | 2 | 2 States | 1- Celsius<br>2- Fahrenheit | R/W | Y |
| MV4 | Airflow Units | N/A | 1 | 3 States | 1- CFM<br>2- L/S,<br>3- CMH | R/W | Y |
| MV5 | Pressure Units | N/A | 1 | 2 States | 1- Inches H20<br>2- Pascals | R/W | Y |
| MV6 | Baud Rate | N/A | 4 | 4 States | 1- 9600<br>2- 19200<br>3- 38400<br>4- 76800 | R/W | Y |
| MV7 | Occupancy | N/A | N/A | 2 States | 1- Unoccupied<br>2- Occupied | R/W | N |
| MV8 | Occupancy Source | N/A | N/A | 4 States | 1- Default<br>2- BACnet<br>3- Button<br>4- Motion | R | N |
| MV9 | Support Unoccupied Mode | N/A | 1 | 2 States | 1- No<br>2- Yes | R/W | Y |
| MV10 | Proximity Screen Mode | N/A | N/A | 3 States | 0-Dim<br>1-Blank<br>2-Always On | R/W | Y |
| MV11 | (Balancing) Device Mode | N/A | N/A | 2 States | 1- Standard Operation<br>2- Balancing (Damper Max Open) | R/W | N |

## BACnet Addressing

The **MAC Address** must be unique per device on each segment of the network. Unlike the Instance Number, the MAC Address does not need to be unique over the whole network. The same MAC Address may be used on different segments of the network.

- To set the MAC Address in the Disio Setup software, enter a desired number into the MAC Address AV input.
- To set the MAC Address over BACnet, discover the diffuser using BACnet software and change the value of Object AV1 to a desired number.
- The MAC Adress must be a number between 0 and 127

The Instance Number must be unique per device across the whole network. Instance Numbers may not be repeated anywhere in the network.

- To set the **Instance Number** in the Disio Setup software, use the Device Instance AV input and enter the desired Instance number.
- To set the Instance Number over BACnet, discover the diffuser using BACnet software and use the object identifier object in the Device Properties of the diffuser (See Device Properties on next page).
- The Instance must be a number between 0 and 4194303.

### Device Properties

| | |
|---|---|
| Adpu Timeout | 6000 |
| Application Software Version | 15.00 |
| Database Revision | 1 |
| Description | Disio |
| Device Address Binding | |
| Firmware Revision | 1.6.12 |
| Location | |
| Max Apdu Length Accepted | 480 |
| Max Info Frames | 1 |
| Max Master | 127 |
| Model Name | Disio |
| Number of Apdu Retries | 0 |
| Object Identifier | OBJECT_DEVICE:4000102 <---------- Instance Number |
| Object List | Object[] Array |
| Property List | Object[] Array |
| Object Name | Disio |
| Object Type | 8 : Object Device |
| Protocol Object Types Supported | 11111 |
| Protocol Revision | 15 |
| Protocol Services Supported | 00000 |
| Protocol Version | 1 |
| Segmentation Supported | 3 : None |
| System Status | 0 : Operational |
| Vendor Identifier | 158 |
| Vendor Name | Price Industries |

## Maintenance

Prodigy with Disio is designed for long life and no lubrication or other maintenance is required other than occasional cleaning of visible surfaces to maintain a good appearance. There are no recommended spare parts.

## Troubleshooting

Please note that the maximum damper opening position is specific to the Prodigy model and inlet size. The full open position is different by model and inlet size to ensure discharge velocity is maintained. When comparing the full open position between diffusers check the diffuser model and inlet size as diffusers that may at first appear to be the same may have different full open positions.

The Disio upon power on will display the Menu button, then the Up/Down button and lastly the room set point followed by the Menu and Up/Down buttons turning off.

Status LEDs are provided on the Junction Panel of all Prodigy Diffusers to aid in field diagnostics.

Green LED – Indicates presence of 24 VAC power supply.

Red LED – Indicates presence of 2-10 VDC control signals. The Red LED will flash the following:

- Solid = Calibration
- 1 Flash = Control voltage below 2VDC – check wiring
- 2 Flash = Normal Operation - Damper full close
- 6 Flash = Normal Operation - Damper between close and open
- 4 Flash = Normal Operation - Damper full open
- 5 Flash = Calibration error – contact factory for support

The following information is provided in the event that a Prodigy with Disio diffuser does not appear to function properly after installation. Since all Prodigy with Disio diffusers are auto-changeover controllers, response will be dependent on the supply air temperature. Connected Drone diffusers will synchronize damper position with Prodigy with Disio diffuser.

If the Prodigy diffuser damper appears to be about 1/2 open and does not move from this position, check the Red LED status. If the red LED is flashing 5 times, cycle power off and then on again, the diffuser should move to a full closed position, and then reopen as needed by the temperature conditions. Issue a full open command (**Page 3**). If the diffuser does not move to the full open position, then please contact the Price Support for further instructions. (**NOTE:** A Prodigy with this issue will not affect other Prodigy diffusers connected to it.)

| Damper | VDC |
|---|---|
| 0% | 2 |
| 10% | 2.8 |
| 20% | 3.6 |
| 30% | 4.4 |
| 40% | 5.2 |
| 50% | 6.0 |
| 60% | 6.8 |
| 70% | 7.6 |
| 80% | 8.4 |
| 90% | 9.2 |
| 100% | 10.0 |

# PRODIGY® WITH DISIO DISPLAY

## MAINTENANCE

### Prodigy Specifications

| Specifications | Prodigy with Disio |
|---|---|
| **Power Supply** | 24 VAC (+-10%) 60Hz; Class 2 |
| **Power Consumption** | 3 VA for diffuser + Disio (+ Drones and any reheat load) |
| **Electrical Connection** | Terminal box wired connection or RJ12 jack from power module |
| **Certification** | ETL listed |
| **Outputs** | 1 Binary Triac zero crossing output at 24 VAC (thermally protected) 12VA maximum |
| | 2x RJ12 jacks for Prodigy Drone units (maximum 6 total per master) |
| **Proportional Band** | Adjustable via Disio Thermostat or USB connection |
| **Temperature Sensors** | 10k NTC supply air temperature thermistor, 10k NTC Thermostat thermistor |
| **Temperature Sensor Range** | -40°F - +175°F (-40.0°C - + 79.4°C) |

### Disio Specifications

| | |
|---|---|
| **Power Requirements** | 24 VAC Hot (50/60 Hz, 6 VA plus external loads) |
| **Power Supply** | 24 VAC (+-10%) 50/60Hz; Class 2 |
| **Power Consumptions** | 6 VA + Diffuser ( +Drones and reheat) |
| **Electrical Connection** | RJ45 jack from Diffuser |
| **Universal/Configurable Outputs (4)** | Configurable For:<br>• 24VAC On/Off (0.50 Amps Max per output) Switched Hot (default)<br>• 24 VAC Floating Point Modulation (Damper / Water Valve)<br>• 0-10 VDC Modulation, 10mA max per output (Damper / Water Valve / SCR Electric Heat) |
| **Unversal/Configurable Inputs (4)** | Configurable For<br>• Binary Input - Contact Closure<br>• Thermistor Input (10k Type J), 70º F to 82º F (+/- 1-2º F typical accuracy)<br>• Voltage Input (0-10 VDC) |
| **Communication ports** | BACnet MS/TP Connection (optional)<br>• Communication speeds: 9,600, 19,200, 38,400, 76,800 (default)<br>• Maximum recommended devices per MS/TP segment: 30 devices<br>USB-C Connection:<br>• For local setup using Windows based Disio Setup software |
| **Size** | 3.31" x 1.25" x 5.18" |
| **Weight** | .2 lb. (100g) |

This document contains the most current product information as of this printing.
For the most up-to-date product information please go to priceindustries.com.

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price | VAV DIFFUSERS